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| EXAMINER |
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MILLER, JONATHAN R

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| ART UNIT | PAPER NUMBER |
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3653

DATE MAILED: 01/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|--------------------------------|-----------------------------|--|
| Office Action Summary | Application No. 10/612,122 | Applicant(s) LEAN ET AL. | |
| | Examiner Jonathan R. Miller | Art Unit 3653 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ✓ 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ✓ 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 20030926, 20040614.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: on page 16, line 2, Examiner believes “fine” should be “finer”.

Appropriate correction is required.

2. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-11, 17 – 20 and 23 – 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Rostoker. The reference discloses a first wall and a traveling wave grid extending along said first wall (col. 7, lines 54+); a second wall having a passage extending therethrough; a gate operatively associated with said passage; and, a controller adapted to output a multi-phase electrical signal and in electrical communication with said traveling wave grid and said gate (col. 9, lines 4+).
5. With regards to claim 2, the reference further discloses said passage is comprised of a plurality of apertures extending through said second wall (Fig. 6b).

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6. With regards to claim 3, the reference inherently discloses said plurality of apertures are substantially cylindrical and have a diameter of from about 10 micrometers to about 250 micrometers. The apparatus is specifically designed for use on a microscopic scale and the embodiment shown in Figs. 6a and 6b is designed to separate microscopic particles through the apertures (col. 9, lines 4+).

7. With regards to claim 4, the reference further discloses said controller outputs an electrical signal having first and second phases to said gate (col. 9, lines 4+).

8. With regards to claim 5, the reference further discloses said passage has a first end and a second end, and said gate includes a first electrode disposed along said passage between said first and said second ends and a second electrode disposed along said passage between said first and second ends and in spaced relation to said first electrode (col. 9, lines 4+; Fig. 6a).

9. With regards to claim 6, the reference further discloses said controller outputs an electrical signal having first and second phases to said gate, said first phase of said electrical signal being applied to said first electrode and said second phase of said electrical signal being applied to said second electrode (col. 9, lines 4+; Fig. 6a).

10. With regards to claim 7, the reference further discloses said passage has a first end and a second end, and said gate includes a first electrode disposed adjacent said first end and a second electrode disposed adjacent said second end (col. 9, lines 4+; Fig. 6a).

11. With regards to claim 8, the reference further discloses said controller outputs an electrical signal having first and second phases to said gate, said first phase of said electrical signal being applied to said first electrode and said second phase of said electrical signal being applied to said second electrode (col. 9, lines 4+; Fig. 6a).

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12. With regards to claim 9, the reference further discloses said traveling wave grid is a first traveling wave grid and said system further comprises a second traveling wave grid extending along said second wall (Fig 7a; col. 10, lines 12+).

13. With regards to claim 10, the reference further discloses said first wall is substantially cylindrical (Fig. 1a).

14. With regards to claim 11, the reference further discloses a housing having a first wall at least partially defining a first transport channel, a second wall at least partially defining a second transport channel, and a gating passage extending in fluid communication between said first and said second transport channels; a traveling wave grid disposed along said first wall; a gate operatively associated with said gating passage; and, a voltage source adapted to output a multi-phase voltage signal and in electrical communication with said traveling wave grid and said gate (col. 9, lines 4+).

15. With regards to claim 17, the reference further discloses said gate includes first and second electrodes disposed along said gating passage (col. 9, lines 4+; Fig. 6a).

16. With regards to claim 18, the reference further discloses said voltage source outputs a voltage signal having first and second phases, said first phase being applied to said first electrode and said second phase being applied to said second electrode (col. 9, lines 4+; Fig. 6a).

17. With regards to claim 19, the reference further discloses said traveling wave grid includes four conductor groups, each having a plurality of conductors, said conductor groups disposed in an inter-digitized pattern (col. 7, lines 54+).

18. With regards to claim 20, the reference further discloses said voltage source outputs a four phase voltage signal, and each of said four phases is applied to a different one of said conductor groups (col. 9, lines 4+; Fig. 6a).

19. With regards to claim 23, the reference further discloses providing a first wall at least partially forming a first chamber, a second wall at least partially forming a second chamber, a passage wall at least partially defining a passage extending in fluid communication between said first and second chambers, a traveling wave grid disposed along said first wall (col. 7, lines 54+), a gate operatively associated with said passage, and a controller adapted to selectively output a multi-phase electrical signal and in electrical communication with said traveling wave grid and said gate; introducing a quantity of separable particles into said first chamber; applying a multi-phase electrical signal from said controller across at least a portion of said traveling wave grid inducing flow of said quantity of separable particles along said first chamber; and, selectively gating a portion of said quantity of separable particles flowing along said first chamber into said second chamber (col. 9, lines 4+; Fig. 6a).

20. With regards to claim 24, the reference further discloses said gate includes first and second spaced apart electrodes disposed along said passage, said step of selectively gating a portion of said quantity of separable particles includes said controller outputting an electrical signal having first and second phases, and applying said first phase to said first electrode of said gate and applying said second phase to said second electrode of said gate (col. 9, lines 4+; Fig. 6a).

21. With regards to claim 25, the reference further discloses said step of providing includes providing a continuous particle supply apparatus in fluid communication with said first chamber,

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and said step of introducing a quantity of separable particles includes introducing a continuous quantity of separable particles from said supply apparatus (col. 9, lines 4+; Figs. 6a and 6c).

Claim Rejections - 35 USC § 103

22. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

23. Claims 3 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rostoker. The reference fails to explicitly disclose said plurality of apertures are substantially cylindrical and have a diameter of from about 10 micrometers to about 250 micrometers. At the time of the invention, it would have been obvious to one of ordinary skill in the art to utilize apertures having a diameter of from about 10 micrometers to about 250 micrometers to achieve a meaningful separation of particles. The apparatus is specifically designed for use on a microscopic scale and the embodiment shown in Fig. 6a is designed to separate microscopic particles through the apertures.

24. With regards to claim 9, the reference fails to explicitly disclose said traveling wave grid is a first traveling wave grid and said system further comprises a second traveling wave grid extending along said second wall. At the time of the invention, it would have been obvious to one of ordinary skill in the art to utilize a plurality of traveling wave grids to provide more control over the particles to effect a more precise separation (col. 10, lines 12+).

25. Claims 12-16, 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rostoker in view of Docoslis et al. Rostoker fails to disclose said traveling wave grid is a first

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traveling wave grid, and said system further comprises a continuous particle supply apparatus in fluid communication with said first transport channel, said supply apparatus including a supply housing at least partially defining a supply chamber, and a second traveling wave grid disposed within said supply chamber. Docoslis et al. discloses said traveling wave grid is a first traveling wave grid, and said system further comprises a continuous particle supply apparatus in fluid communication with said first transport channel, said supply apparatus including a supply housing at least partially defining a supply chamber, and a second traveling wave grid disposed within said supply chamber (col. 11, lines 17+). At the time of the invention, it would have been obvious to one of ordinary skill in the art to utilize more than one wave grid to create a multistage configuration of filter plates to achieve superior separation results.

26. With regards to claim 13, Rostoker fails to disclose said supply apparatus further includes a support wall supported within said supply chamber and said second traveling wave grid extends along at least a portion of said support wall. Docoslis et al. discloses said supply apparatus further includes a support wall supported within said supply chamber and said second traveling wave grid extends along at least a portion of said support wall (col. 11, lines 17+). At the time of the invention, it would have been obvious to one of ordinary skill in the art to utilize more than one wave grid to create a multistage configuration of filter plates to achieve superior separation results.

27. With regards to claim 14, Rostoker discloses said support wall is generally cylindrical (Fig. 1a).

28. With regards to claim 15, Rostoker further discloses said gating passage is a first gating passage, and said supply apparatus is in fluid communication with said first transport channel

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through a second gating passage extending between said supply chamber and said first transport channel (col. 9, lines 44+; Fig. 6c).

29. With regards to claim 16, Rostoker further discloses said gate is a first gate, and said system further includes a second gate in electrical communication with said voltage source and operatively associated with said second gating passage (col. 9, lines 44+; Fig. 6c).

30. With regards to claim 21, Rostoker fails to disclose said traveling wave grid is a first traveling wave grid and said gating passage is a first gating passage, said housing further includes a third wall at least partially defining a third transport channel and a second gating passage extending in fluid communication between said second and said third transport channels, and said system further includes a second traveling wave grid extending along said second wall. Docoslis et al. discloses said traveling wave grid is a first traveling wave grid and said gating passage is a first gating passage, said housing further includes a third wall at least partially defining a third transport channel and a second gating passage extending in fluid communication between said second and said third transport channels, and said system further includes a second traveling wave grid extending along said second wall (col. 11, lines 17+). At the time of the invention, it would have been obvious to one of ordinary skill in the art to utilize more than one wave grid to create a multistage configuration of filter plates to achieve superior separation results.

31. With regards to claim 22, Rostoker fails to disclose said gate is a first gate, and said system further includes a second gate operatively associated with said second gating passage. Docoslis et al. discloses said gate is a first gate, and said system further includes a second gate operatively associated with said second gating passage (col. 11, lines 17+). At the time of the

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invention, it would have been obvious to one of ordinary skill in the art to utilize more than one wave grid to create a multistage configuration of filter plates to achieve superior separation results.

32. Rostoker and Docoslis et al. are analogous art as they are from the same field of endeavor: electrostatic separators.

Conclusion

33. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan R. Miller whose telephone number is (571) 272-6940. The examiner can normally be reached on M-F: 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kathy A. Matecki can be reached on (571) 272-6951. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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